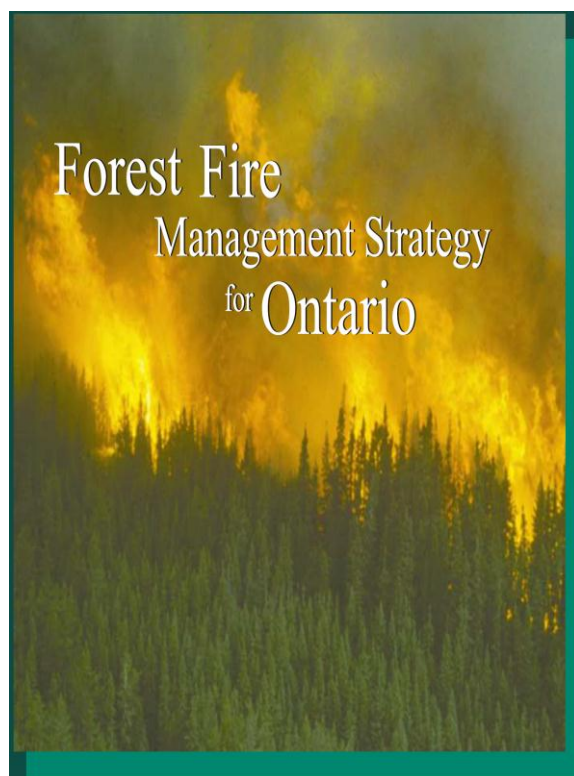


Updating Ontario's Approach for Managing Forest Fires

A Discussion Paper



Ontario Ministry of Natural Resources

June 2013

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1. Introduction

Forest fires are an important part of the environment in which we live. Fire plays a natural role in releasing nutrients, promoting new growth, restoring ecosystems and encouraging biodiversity to ensure the survival of many native species.

Forest fires can occur anywhere in Ontario, but most large fires occur in the boreal forest. They can threaten human safety, destroy property or disrupt economic activities. The Ministry of Natural Resources (MNR) is charged with managing forest fires throughout the fire regions of central and northern Ontario to both protect public safety and property while enabling fire's role in ecosystem health. In southern Ontario, municipalities have the lead role for forest fire response and management activities.

In 2004, MNR released the current *Forest Fire Management Strategy for Ontario (the Strategy)*. The *Strategy* established direction to guide the response to forest fires across Ontario. It outlines the areas where greater potential for damage from forest fires require more intensive suppression efforts and where fire can continue to play an important beneficial ecological role. The *Strategy* also addresses how MNR will work on developing partnerships as well as forest fire education and prevention activities.

The direction introduced in 2004, has served the public of Ontario well, providing effective response to forest fires and reducing threats to public safety. The *Strategy* has allowed flexibility in the management of forest fires, balancing public safety needs with opportunities to use fire for land and resource management purposes.

The environment in which fire management operates is changing. There are increasing signs that shifts in climate and forest conditions are likely to result in more difficult fire seasons. Expanding economic activity in the Far North is likely to increase the number of fires that require action to reduce the threat to people and infrastructure.

MNR is reviewing the current *Strategy*, as well as other fire management regulation and policy, with the intent of making revisions to ensure the continued delivery of an effective and efficient forest fire management program.

1.1. Purpose

To meet anticipated challenges, this discussion paper outlines proposed changes to strategic directions, regulations, and policies to build upon the direction set in 2004 and renew the *Forest Fire Management Strategy* for Ontario. Many of the basic tenants of the *Strategy* continue to be relevant and are not specifically discussed in this paper.

This paper is designed to inform the public, stakeholders, other government organizations, and Aboriginal peoples about proposed changes to how forest fires will be managed in Ontario and to invite input on new approaches to meet challenges over the next decade.

You are invited to be a part of the conversation as we begin to shape the future of the forest fire management program in Ontario.

2. Context

2.1. Ontario's Current *Forest Fire Management Strategy*

*Ontario's Forest Fire Management Strategy*¹ provides direction for how the MNR manages forest fires on 107 million hectares of Crown and private lands within the forest fire regions of Ontario.

MNR's objectives for fire management are:

1. To prevent personal injury, value loss and social disruption resulting from a forest fire; and
2. To promote the understanding of the ecological role of fire, and utilize its beneficial effects in resource management.

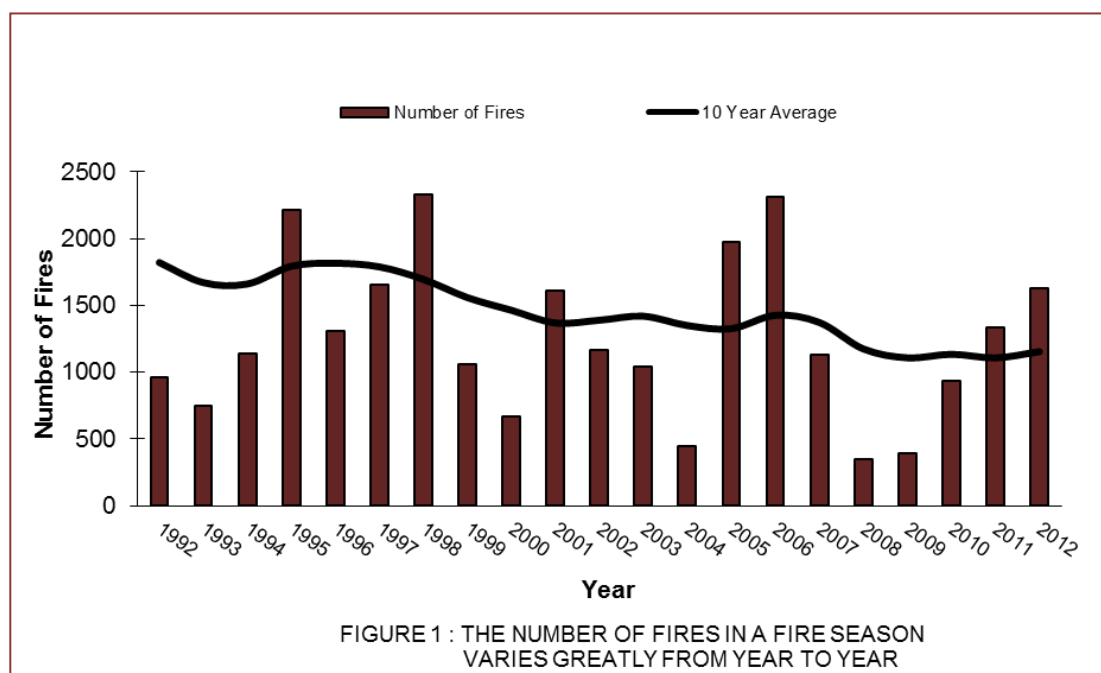
These objectives are achieved through a coordinated approach that incorporates appropriate resource capacity, proper preparedness and effective action to ensure that:

- Every fire in Ontario receives a response and each response is governed by:
 - The predicted behaviour of the fire;
 - The potential positive or negative impact of the fire on persons, property and values; and,

¹http://www.mnr.gov.on.ca/en/Business/AFFM/Publication/MNR_E000016P.html

- The estimated cost of the response.

The risk of large or damaging fires is not the same in all areas of the province. Forest susceptibility to fire varies with the type and condition of the vegetation. Weather also plays a major role. Hot, dry and windy conditions, which affect fire occurrence and behaviour, can occur in any part of the province. The risk of fire can change quickly from day to day and week to week. On average, Ontario experiences more than 1,000 forest fires and 140,000 hectares burned annually. The number of fires and their impact is highly variable from year to year (Figure 1*).



*Based on data from MNR Fire Archive

How MNR Responds to Fire

Direction set out in the *Strategy* provides a foundation for daily fire response decision-making, priority setting and operational procedures to deploy firefighters, aircraft and support staff. When fires are occurring, fire managers need to make timely decisions which require flexibility and mobility of resources. Guidance from the *Strategy*, which provides for a range of fire response options, is combined with operational procedures, local information and resources to determine the type of response to any fire.

Fire managers use a variety of techniques to manage fires ranging from immediate and complete suppression of fires that threaten human values, to monitoring fires that present low risk to people or infrastructure and have a beneficial effect on renewing or maintaining forest health. In fire suppression decision-making, human “values” are considered in every decision:

On average, the Ministry spends \$137 million annually on forest fire management:

- \$65 million is budgeted for core staff, facilities, and to put seasonal staff, aircraft and equipment in place.*
- Between \$40 and \$120 million is spent for fire suppression once fires occur.*

- Human life
- Communities/towns
- Permanent residences and major infrastructure
- Remote businesses (e.g., tourist lodges)
- Isolated infrastructure (e.g., communication towers, power lines)
- Resources (e.g., forestry allocations, mining developments)
- Significant cultural features
- Species at Risk and other wildlife habitat

A fire management approach that considers the values at risk and balances the needs for public safety and economic development with ecological objectives allows fire managers to prioritize resources of the fire management program and achieve the best overall outcomes.

The current *Strategy* recognizes that fire management requirements and potential impacts differ across the province depending on resource and land management direction, types of forest and severity of fires.

To address these differences, the current *Strategy* delineates six fire management zones across the province based on common management objectives, land use, fire history, and forest ecology.

Each zone has management objectives and direction regarding fire response and the use of fire. In general, the response direction by zone is as follows:

Hudson Bay Zone

- Recognizes the natural role of fire on the land in many areas;
- Fires are actively monitored and prioritized to receive a response depending on values at risk;
- Fires immediately adjacent to communities are suppressed; and
- Fires negatively impacting the community will receive a response based on a fire assessment.

Northern Boreal Zone

- Recognizes the natural role of fire on the land in many areas;
- Fires receive a response depending on values at risk;
- Fires immediately adjacent to communities are suppressed;
- Fires negatively impacting the community will receive a response based on a fire assessment; and
- Fires in the Bak Lake Sub-Zone generally receive a full suppression action until extinguished to protect wood supply opportunities.

Boreal Zone and Great Lakes/St. Lawrence Zones

- Fires will generally receive a full response and sustained action until extinguished, unless an operational plan suggests a modified or monitored response; and
- Areas identified for hazard reduction or forest renewal (e.g., insect or storm damaged forests) may receive a modified response.

MAP OF FIRE MANAGEMENT ZONES AND FIRE REGIONS



Parks Zone

- Consists of 11 large provincial parks distributed across central and northern Ontario; and
- Fire management is guided by the direction of the surrounding zone unless a detailed fire plan has been prepared.

Southern Ontario Zone

- Municipalities have the responsibility for fire management and generally suppress fires promptly; and
- MNR will provide support to municipalities in event of an extraordinary fire situation.

The *Strategy* allows managers to develop plans in greater detail to manage fire in any zone. The plans can identify a variety of responses to forest fires so that public protection, resource management and ecological objectives can be achieved. These plans can occur on any landscape unit across the province, such as:

- Provincial Parks
- Conservation Reserves
- Wildlife Management Units
- Forest Management Units

2.2. Drivers for Change

Like all organizations, the MNR is continuously evolving to remain effective and responsive to change. In the coming years, Ontario's ability to provide the level of forest fire protection desired by Ontarians will be challenged by a number of factors, including:

Societal

- Population growth and expansion of homes, businesses, and activity in forested areas and into the wildland-urban interface;
- Smoke management and air quality concerns; and
- Public expectations for the protection of property.

Environmental

- Adapting to the effects of climate change:
 - Longer and more severe fire seasons;
 - Increased frequency and severity of extreme weather events, changes in forest conditions resulting from windstorms, pests and disease; and
 - Increased occurrence of drought.

Economic/Financial

- Expansion of major industrial developments, including mining exploration and processing operations, tourism, forestry, energy and infrastructure development; especially in northern areas of the province which have, to date, seen relatively little industrial activity;
- Diverse management objectives related to forests, e.g., biodiversity, timber resources and traditional use;
- Potential expectations related to carbon management such as carbon trading and storage, reducing emissions and the government's carbon footprint; and
- Increasing costs of firefighting.

Resources

- Capacity limitations (e.g., staff, equipment, funding);
- Recruitment and retention of a highly skilled workforce; and
- Forest fire fighting partners (e.g., municipalities and other provinces) face similar challenges, and may not be able to continue to assist each other at current levels during periods of escalated activity.

Forest fire management agencies across North America are dealing with similar challenges.

3. Proposed Changes

The strategic objectives for forest fire management in Ontario (Section 2.1) will continue to guide the program in the future. However, to respond to challenges and manage future demands on fire management, the MNR is proposing to adjust its current *Strategy* in the following ways:

Element 1: Fire Prevention and Mitigation

- a. Expand regulations to prevent industrial caused forest fires.
- b. Enhance FireSmart² mitigation programs to reduce impacts if fires occur.

Element 2: Fire Response

- a. Respond to fires across the province based on the potential threat to values, or benefit, rather than upon which Fire Management Zone the fire is located.
- b. Focus suppression of large fires on protecting values and reduce expenditure on areas of fires where no values are threatened

Element 1 places more emphasis on fire prevention and mitigation to reduce the number of fires that occur in the province and to lessen the hazard around structures and facilities to minimize the losses resulting from forest fires.

Element 2 focuses on how we respond to forest fires to manage cost and increase the beneficial impact of fire. Both these elements are described in more detail in the following paragraphs.

Element 1: Fire Prevention and Mitigation

Preventing fires and mitigating losses (taking steps that can reduce losses when a fire occurs) are the safest and most cost-effective ways to lessen property damage, value loss and social disruption resulting from forest fires.

The Canadian Wildland Fire Strategy³ recognizes the need to enhance fire prevention and mitigation programs. However, the means to support their

² www.firesmartcanada.ca

³ <http://www.ccfm.org/english/coreproducts-cwfs.asp>

implementation and demonstrate success has been difficult. Ontario needs to enhance fire prevention and loss mitigation efforts. To accomplish this, homeowners, communities, businesses and industry must play an increasing role.

Lightning is the only natural cause of forest fires in Ontario, starting approximately 50 per cent of the forest fires to which the MNR responds. The remainder are caused by people and many are preventable.

Fire prevention measures include public education and regulation of high risk activities, particularly during times of high forest fire danger. With increased access and development activity in the Far North, there is a potential for increased fire starts in proximity to people, infrastructure and buildings. This emphasizes the need to take steps to reduce the number of fires that start, especially in remote areas.

For many years, MNR and the forest industry have worked together to prevent fires and to respond quickly to protect industry assets and wood supply. Through forest management plans under the *Crown Forest Sustainability Act* (CFSA), companies are required to put measures in place to modify forest operations as fire danger increases. The MNR's [Modifying Industrial Operations Protocol](#)⁴ provides direction on where and when operations can proceed depending on the fire danger on a given day. The forest industry also shares the risks when fires occur. They are required to train workers to suppress small fires that occur near their operations and to have fire suppression capability on site.

The MNR is considering introducing regulations that would require modified work practices and forest fire suppression preparedness for all industries (e.g., mining, power, and tourism industries) that use forests, clear forested land, or build infrastructure in forested areas. Proposed new measures would emphasize the need to plan ahead to protect resources and infrastructure by preventing fires. These may include:

- Controls on the type and/or timing of activities in some areas based on the risk of fires starting from that activity.
- Requirements for Industry to have plans in place to protect their own assets and infrastructure, should a fire occur, to protect against losses.

⁴ http://www.mnr.gov.on.ca/en/Business/AFFM/Publication/MNR_E000014P.html

Reducing fire starts and planning ahead to prevent fire damages will help protect industrial activity in Ontario's forested regions, and the natural resources on which they rely.

The MNR will continue to work with our industrial partners to develop and implement tools aimed at preventing person and industry caused wildfires for people who live, work and recreate in Ontario's forests and to ensure the accountability of those who carelessly start a wildfire.

Rapid response with appropriate tools to aggressively suppress wildfires that pose a threat to people and infrastructure will continue to be a key strategy in Ontario. Under extreme conditions, and despite appropriate suppression actions, some wildfires can have devastating consequences. Success in

reducing losses lies in preparation before a fire occurs. Property owners and communities can undertake activities such as clearing away flammable materials and reducing the chances of fire spreading to homes and businesses to protect themselves from wildfire risk.

FireSmart mitigation concepts are being applied in Ontario and are endorsed nationally by the Canadian Council of Forest Ministers. Recent work across North America has demonstrated that a *FireSmart* approach to prepare property or modify forest fuels can reduce losses and costs, should a fire occur. Several guidelines for homeowners and communities are available to be used to take some simple steps to mitigate fire hazard.

For example, a cleared separation between a home and forest, the use of non-flammable building materials, or the thinning and pruning of conifer trees

FireSmart in Ontario:

Ontario adopted FireSmart in 2004 as an educational program that provides information and tools to assist communities and homeowners in reducing losses due to wildfires.

The FireSmart program focuses on reducing the threat of wildfire to human life and communities through application of the seven mitigation principles for the wildland/urban interface:

1. *Vegetation management*
 2. *Development Considerations*
 3. *Public education*
 4. *Legislation*
 5. *Inter-agency cooperation*
 6. *Cross-training*
 7. *Emergency planning*
-

can lower the fire risk of fire moving from the forest to a building and reduce potential losses when forest fires occur.

Industrial development in remote forested areas should also plan for the threat of wildfire and mitigate risk to structures, equipment, and flammable materials by using fire-resistant engineering and construction techniques, and by modifying the surrounding forest fuels.

Property owners taking steps to mitigate forest fire hazard in forested areas is key to reducing the loss and damage of property due to forest fires. MNR will expand support for *FireSmart* programs through work with partner agencies such as *FireSmart* Canada, the Office of the Fire Marshal and other ministries who support communities in fire and emergency management activities.

Discussion Questions

- 1. MNR is proposing to expand regulations aimed at preventing and mitigating industrial caused forest fires.***
 - a. What industries or activities should be regulated?***
 - b. What conditions, plans, resources, restrictions or other prevention and mitigation actions should be required?***
 - c. What penalties should apply for non-compliance?***
 - d. Are there other ways to achieve compliance and encourage industries to prevent and mitigate forest fire risk? If so, what are they?***
- 2. Should individual, property owners or communities be encouraged to be more accountable for reducing the risk of forest fires and minimizing losses due to risk?***
 - a. How can communities and individuals become more aware of and adopt FireSmart principles?***
- 3. Are there other actions MNR should consider to promote fire prevention and mitigation?***

Element 2: Fire Response

Effective forest fire response depends on planning, partnerships, daily positioning of firefighters and aircraft to areas of highest fire danger, early fire detection and prompt dispatch to the fire. On some days, few fires occur and are relatively easy to suppress. On other days, suppression forces are challenged and some fires will grow to larger sizes before they can be suppressed. On occasion, the number of new fires and extreme fire behaviour can overwhelm available firefighting resources and fires will escape initial suppression efforts.

Currently in the Boreal and Great Lakes/St. Lawrence Fire Management Zones, the objectives are to suppress all fires quickly and limit the size as much as possible. In the Northern Boreal Zone, some protected areas, and the Hudson's Bay Zone, the current strategy is to monitor most fires and suppress them only where they threaten human or other identified values.

As development activity increases in the Northern Boreal and Hudson Bay Zones, there may be more times when values are threatened. At the same time, changes in climate may mean more severe fire conditions occur more often. MNR may not be able to add resources or distribute them across a broader area and protect all values to the same degree. A different strategy to respond to fires across the province will be needed in the future.

Responding to Fires Based on Threat to Values

The proposed approach to balance increased demands and affordability is to plan and implement response actions based on the potential of any fire to threaten values or land use priorities. This is a change to the current approach of planning and initiating fire response based on Fire Management Zone.

Under the proposed approach, fire managers would be required to make response decisions on each fire based on known values in the area and forecasted fire behaviour, while giving due consideration to fire suppression costs and land management objectives. In some cases this approach would lead to fires within the Boreal and Great Lakes/St. Lawrence Fire Management Zones being monitored or receiving a modified fire response in the future, rather than the current full suppression response. Where an important value, community, or infrastructure is threatened, a full suppression response would still be employed.

Responding to each fire based on the individual threat or impact to values would allow for the strategic use of available suppression resources and permit coverage of service to priorities in all resource areas. This approach will require a shift in public perspective; fire management success would not be measured by the speed of the response alone and would consider whether the response is appropriate for the fire, for the type of day, and delivered at the best value to taxpayers.

To determine the appropriate response to a forest fire using this approach, complex fire management decisions need to be made quickly. Managers must consider the forecast fire behaviour, possible outcomes and effects (positive and negative) of the various response options in an effort to minimize value loss, social disruption and cost.

To help managers make effective and timely decisions, they will require advanced assessment of the relative priority and location of values. Areas where fire may safely be allowed to fulfill an ecological role will also need to be identified. This type of assessment already takes place to some degree. Information is available to fire managers and the science to support these real-time decisions is better than it has ever been in the past.

Change will be required so that resource managers, fire managers, industrial and community partners make a concerted effort to identify where fire response should be most aggressive so that when a fire occurs, the fire manager can respond in the most appropriate manner. Continuous learning through research, monitoring and adaptive management approaches will be necessary.

Wherever possible, providing direction for fire management will continue to be incorporated in the preparation of Land Use Plans, Forest Management Plans and Protected Area Management Plans.

Change to Fire Management Zones

Under the proposed approach, Fire Management Zones will not be used to apply different response direction but will continue to play a role in planning for and reporting about fire on the landscape.

The current *Strategy* commits to incorporating parts of the Northern Boreal Fire Management Zone into the Boreal Fire Management Zone as Sustainable Forest Licences are issued and forest management plans approved. Under the proposed approach these zones will have the same direction for fire response.

Future land use planning discussions may consider how forest fire would affect proposed land uses, either positively or negatively. Any subsequent resource management plans may provide specific direction to identify areas where fire suppression and/or fire use are desirable across the Northern Boreal and Hudson Bay Fire Management Zones.

As part of the renewal of the *Strategy*, discussion will be initiated with northern communities, to determine if new approaches can be applied for fire response in the areas immediately surrounding the communities.

Discussion Questions

- 1. What are your views on the proposed new approaches to forest fire response?***
 - 2. What are the best ways MNR forest fire and resource managers could learn about values on the landscape to better inform forest fire response decisions?***
 - 3. Planning is necessary to enable timely and appropriate response to forest fires. Are you aware of other plans that can provide information for fire planning? Can you provide advice on best approaches to ensure your plans address forest fire risk?***
 - 4. What other issues or information should MNR consider when deciding whether or how to adopt this new approach to fire response decisions?***
-

Cost Management for Large Fires

The boreal forest has been shaped by fire over thousands of years. Fires regularly grow to large sizes renewing stands of jack pine and spruce. While MNR now suppresses many fires, managing some of these fires at larger sizes will allow fire to continue to shape part of the landscape, which recognizes the ecological benefit fire plays in many circumstances.

The cost for suppressing forest fires and protecting values can vary from a few thousand dollars for small fires to tens of millions of dollars for very large fires. Since the current *Strategy* requires full response with sustained action

in certain zones, regardless of threat to values, suppression activities often require fire managers to allocate valuable firefighting resources such as firefighters and aircraft to suppressing large fires. To balance resource demands, and manage costs effectively, different tactics can be used to minimize the damage and costs associated with large fires. Impacts to values would continue to be minimized and costs could be kept lower by using firefighting resources more strategically and explicitly recognizing risks and the potential beneficial effects of fire.

The following approaches are currently used on large fires when resources are stretched or to reduce expenditure when risks are low. The proposed strategy would place more reliance on these tactics:

- Using an approach where some sections or areas of the fire are actively suppressed while other areas are allowed to burn to natural fire breaks, such as waterways;
- Using fire to remove forest fuels ahead of a fire that will bring a forest fire to a natural or constructed fire break or into an area with few identified values; and
- Suppressing the fire to a point where it is not expected to grow, and then monitoring the fire, only taking additional suppression action if required.

While this is expected to reduce expenditures for fire suppression these techniques will likely result in greater areas burned and fires that smoulder on the landscape longer. This could create issues related to smoke or restricted access for other forest users. However, the resources freed would be directed towards protecting values and keeping other fires small which would result in reduced overall costs and losses.

Discussion Question

Fire plays an important role in the forests of Ontario. What are your thoughts on allowing more fire on the landscape to improve forest health and reduce overall costs of forest fire management in Ontario?

4. Next Steps

This discussion paper begins the dialogue on changes to managing forest fire in Ontario. MNR encourages your active participation in the discussion and we look forward to your feedback on the approaches that have been highlighted in this paper.

Discussion Question

Do you feel that there are additional or different approaches which should be considered to manage forest fires?

Once the posting period for this discussion paper ends, all comments received will be reviewed and considered in shaping the updated *Forest Fire Management Strategy* for Ontario. A draft revised *Strategy* will be developed and posted on the Environmental Registry for review and comment later this year.

If approved, the Ministry will identify and consult on proposed regulatory changes through a separate legislative or regulatory development process, as appropriate.

The Ministry is committed to using the Environmental Registry and Regulatory Registry as a means of conducting such future consultation on proposed changes. Additional consultation opportunities with the public, stakeholders, and Aboriginal peoples will continue throughout the duration of this project.

APPENDIX A - SUMMARY OF PROPOSED CHANGES

Element	Current Strategy	Proposed Changes
Fire Prevention and Mitigation	- Forest industry activities regulated through the Crown Forest Sustainability Act - Other Industrial activities have minimal regulation and most mitigation activities voluntary <i>FireSmart</i> program promoted as best practices	- Prevention and preparedness activities regulated in one way for all industrial activity within forested areas - Enhance <i>FireSmart</i> tools, ensure property owners and communities mitigate wildfire hazard in new development - Promote self-compliance and self-protection
Fire Response	Fire management direction by Zone Hudson Bay Zone - Fires are actively monitored and prioritized to receive a response depending on values at risk; - Fires immediately adjacent to communities are suppressed. Northern Boreal Zone - Fires receive a response depending on values at risk, - Fires negatively impacting the community will receive a response based on a fire assessment, - Fires in the Bak Lake Sub-zone full suppression action until extinguished Boreal Zone and Great Lakes/St. Lawrence Zone - Fires receive a full response and sustained action until out, unless an operational plan suggests a modified or monitored response Parks Zone - Fire management is guided by the direction of the surrounding zone unless a more detailed park fire plan has been prepared. Southern Ontario Zone - Municipalities have the responsibility for fire management and generally suppress all fires	Fire Management direction is the same across Boreal, Great Lakes/ St. Lawrence, Northern Boreal and Hudson Bay zones - An initial response to all fires based on risk to communities or other values (response based on weather, time of year, fire behaviour and values and potential for social disruption) - An approach to large fire management that allows larger forest fires for ecological benefits. - In areas where risks of loss are lower, some fires may be permitted to grow larger. - Some fires may be contained rather than extinguished and may burn/smoulder longer. Northern Boreal Zone - Review boundaries Parks Zone - Direction similar to surrounding zones. Southern Ontario Zone - Remain the same

APPENDIX B

Glossary

Fire Prevention: Activities directed at reducing fire occurrence; includes public education, law enforcement, personal contact and reduction of fire hazards and risks.

Full response: A wildfire which requires immediate, aggressive initial attack and/or sustained suppression action until the fire is declared out.

Managed Fire: Any wildfire fire managed using full, modified, or monitored response or a combination of response options to meet fire or resource management objectives such that costs and/or damage are minimized, and/or benefits from the fire are maximized.

Mitigation: Actions taken to reduce the effects of an emergency or disaster.

Modified Response: A wildfire that is managed using a combination of suppression techniques, including direct and indirect attack as well as monitoring to steer, contain or otherwise manage fire activity within a pre-determined perimeter such that costs and/or damage are minimized, and/or benefits from the fire are maximized.

Monitored Response: an option where forest fires are observed and assessed to determine the response option if response is required to minimize social disruption and/or economic impact.

Suppression: All activities concerned with controlling and extinguishing of fire following its detection.

Threat: A person, thing or event regarded as a likely cause of harm or damage.

Values: The specific or collective set of natural resources and human-made development/improvements that have measurable or intrinsic worth and that may be destroyed or otherwise altered by fire in any given area.

Wildland-Urban Interface: Areas where residential, commercial and industrial development is located in close proximity to forested areas.